

### REMARKS

In the aforementioned amendment, the drawings have been modified to address the Examiner's objection to the drawings. Claims 1, 2, 4-20, 22-36 and 38-52 are presently pending in this application, of which claims 1, 19 and 35 are independent. Claims 1, 2, 4-20, 22-36, and 38-52 stand rejected. Applicants submit that pending claims 1, 2, 4-20, 22-36 and 38-52 are in condition for allowance.

The following comments address all stated grounds of rejection. The Applicants urge the Examiner to pass the claims to allowance in view of the remarks set forth below.

#### Objection to Drawings

The Examiner objected to Figures 3-10 because the characters in the shaded area were not shown clearly. Substitute Figures 3-10 are submitted herewith to correct the objection by removing the shading from the areas where characters are shown.

### Claim Rejections under 35 USC § 103

Claims 1, 2, 4-20, 22-36, and 38-52 stand rejected under 35 U.S.C § 103. For ease of the discussion below, each claim rejection under 35 U.S.C § 103 is discussed separately.

#### I. Claims Rejected under 35 U.S.C § 103(a) as Unpatentable over Young in view of Weitz

Claims 1, 2, 8, 12, 13, 15, 16, 18-20, 26, 30, 32, 34-36, 42, 46, 47, 50 and 51 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Young et al. ("A Knowledge Based Electronic Information and Documentation System", ACM, January 2000) ("Young") in view of Weitz ("SGML nets: Integrating Document and Workflow Modeling", IEEE, 1998) ("Weitz"). Applicants respectfully traverse this rejection and contend that Young in view of Weitz fails to

detract from the patentability of claims 1, 2, 8, 12, 13, 15, 16, 18-20, 26, 30, 32, 34-36, 42, 46, 47, 50 and 51.

A. Non-obviousness of Independent Claims 1, 19 and 35

Independent claims 1, 19 and 35 are directed to a method, program and system, respectively. These independent claims recite a set of reporting components that bi-directionally communicate with a computing environment during *a simulation of a simulation model*. That is, during the report generation process, the reporting components bi-directionally communicate with the computing environment during simulation of the simulation model to create reports associated with a state of the simulation. Through bi-directional communication with the computing environment, the reporting components can change the running simulation and receive information about a state of the simulation to incorporate into a report. Young in view of Weitz does not teach or suggest a set of reporting components that bi-directionally communicate with a computing environment *during a simulation of a simulation model*.

1. Young

Young describes a knowledge-based documentation automation system, part of a larger knowledge-based system called SciNapse, which helps automate the generation of electronic notebooks (Page 280, Column 1, Paragraph 1, Lines 1-3). These electronic notebooks are of two kinds: reference materials and reports (Page 280, Column 1, Paragraph 1, Lines 10-11). Reference materials are generated from the knowledge base and the reports from instances created by a run of the SciNapse system (Page 280, Column 1, Paragraph 1, Lines 10-11 and 15-16).

Young describes a run of the system as transforming an input specification into numerical code (Page 280, Column 1, Paragraph 1, Lines 16-19). The resulting numerical code is referred

to as an instance created by a run of the system. This transformation, or instance, is not a *simulation of a simulation model* but a process of taking an input specification of a problem and converting it into an executable numerical program representing the problem (Page 280, Column 1, Paragraph 1, Lines 5-7; Page 280, Column 2, Paragraph 1, Lines 3-5). Reports generated by the transformation process document the transformations to help a user understand how SciNapse transformed the input specification (Page 280, Column 1, Paragraph 1, Lines 15-19).

Young does not teach or suggest executing *a simulation of a simulation model* during the process of generating electronic notebooks. Young discusses using the reports generated from the numerical program transformation process as a source of information for electronic notebooks. These reports are not generated *during a simulation of a simulation model*. The reports are generated during a transformation process to make a numerical program from a problem specification. Furthermore, reports are not generated from running the numerical program. Moreover, Young does not run any instances of a numerical program while generating electronic books.

Additionally, Young does not teach or suggest reporting components that bi-directionally communicate with a computing environment during the *simulation of a simulation model*. Young's purpose is to generate electronic notebooks as reference materials for an implemented system to help a user understand how to use the system. In meeting this purpose, Young does not require reporting components to bi-directionally communicate with a computing environment during the *simulation of a simulation model*. As such, Young is void of any discussions of bi-directionally communication with a computing environment during the *simulation of a simulation model*. Therefore, Young fails to teach or suggest reporting components that bi-

directionally communicate with a computing environment *during a simulation of a simulation model*.

2. Weitz

Weitz introduces the use of SMGL nets for integrated document and workflow modeling. SMGL nets are a variant of Petri nets, which is a well-established language for modeling system behavior. SMGL, a generic markup language, is used with Petri nets to more tightly integrate document and workflow modeling by defining explicit structure to documents. SMGL documents consist of a document type definition (“DTD”) and an instance. The DTD provides grammar to define the elements of a document and the instance holds the document content. In SMGL nets, SMGL allows document processing operations in the workflow modeling of a business process to be defined using the structure of a document.

The Examiner cites Weitz for the purpose of suggesting that one ordinarily skilled in the art might modify Young to define a set of reporting components that can be assembled to form a report template. However, all the claim limitations must be taught or suggested by the prior art. As with Young, Weitz does not teach or suggest reporting components bi-directionally communicating with a computing environment *during a simulation of a simulation model*.

Weitz is directed towards applying the use of SMGL documents with Petri nets to more tightly define document processing operations within a business process workflow. As such, Weitz is void of any discussions with regards to bi-directionally communicating with a computing environment *during a simulation of a simulation model*. Therefore, Weitz does not teach or suggest reporting components bi-directionally communicating with a computing environment *during a simulation of a simulation model*.

For the above discussed reason, neither Young nor Weitz, alone or in combination, discloses, teaches or suggests reporting components bi-directionally communicating with a computing environment *during a simulation of a simulation model*. Therefore, Applicants contend that Young in view of Weitz fails to detract from the patentability of independent claims 1, 19 and 35. Accordingly, Applicants respectfully request the withdrawal of the Examiner's rejection of claims 1, 19 and 35 under 35 U.S.C. §103.

B. Dependent Claims

1. Non-obviousness of Dependent Claim 8

Young in view of Weitz does not teach or suggest each and every feature of claim 8. Claim 8 recites the feature that processing the reporting components includes *requesting data from a simulator*. Claim 8 is dependent on claim 1, and, thus, incorporates the patentable subject matter of claim 1. Young in view of Weitz does not teach or suggest that processing reporting components includes *requesting data from a simulator*.

In the Office Action, the Examiner cites a kernel and equates it with a simulator (Page 181, Column 1, Paragraph 3, Lines 2-11). The kernel implements a set of mathematical programming functions (Page 181, Column 1, Paragraph 3, Lines 3-5). Conventional mathematical notation in the text of the electronic notebooks can be evaluated by the kernel (Page 181, Column 1, Paragraph 2, Lines 2-3 and Paragraph 5, Line 3). However, nowhere in Young does it teach or suggest the kernel is a *simulator* or running a *simulation of a simulation model*. As such, nowhere in Young does it teach or suggest that reporting components *request data from a simulator*. Therefore, Young fails to teach or suggest that processing reporting components includes *requesting data from a simulator*. Accordingly, Applicants contend that Young in view of Weitz fails to detract from the patentability of claim 8.

2. Non-obviousness of Dependent Claims 2, 12, 13, 15, 18, 20, 26, 30, 32, 34, 36, 42, 46, 50 and 51

As discussed above, Young in view of Weitz does not teach or suggest each and every feature of claims dependent from independent claims 1, 19 and 35. Claims 2, 12, 13, 15, 16 and 18 are dependent on claim 1, and, thus, incorporate the patentable subject matter of claim 1. Claims 20, 26, 30, 32 and 34 are dependent on claim 19, and, thus, incorporate the patentable subject matter of claim 19. Claims 36, 42, 46, 47, 50 and 51 are dependent on claim 35, and, thus, incorporate the patentable subject matter of claim 35. Therefore, Applicants contend that Young in view of Weitz fails to detract from the patentability of claims 2, 12, 13, 15, 18, 20, 26, 30, 32, 34, 36, 42, 46, 50 and 51.

Accordingly, Applicants respectfully request the withdrawal of the Examiner's rejection of claims 2, 8, 12, 13, 15, 18, 20, 26, 30, 32, 34, 36, 42, 46, 50 and 51 under 35 U.S.C. §103.

II. Rejection of Claims under 35 U.S.C § 103(a) as Unpatentable over Young in view of Weitz in further view of Lannert

Dependent claims 4-7, 9, 11, 14, 17, 22-25, 27, 29, 31, 33, 38-41, 43, 45, 48 and 52 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Young in view of Weitz and in further view of Lannert et al (U.S. Patent 6,101,489) ("Lannert"). Applicants respectfully traverse this rejection and contend that Young in view of Weitz in further view of Lannert fails to detract from the patentability of claims 4-7, 9, 11, 14, 17, 22-25, 27, 29, 31, 33, 38-41, 43, 45, 48 and 52.

A. Non-obviousness of Claims Dependent on Independent Claims 1, 19 and 35

Independent claims 1, 19 and 35 are directed to a set of reporting components that bi-directionally communicate with a computing environment *during a simulation of a simulation model*. As discussed above, Young in view of Weitz does not teach or suggest a set of reporting components that bi-directionally communicate with a computing environment *during a simulation of a simulation model*. As such, Applicants contend that independent claims 1, 19 and 35 are patentable and in condition for allowance.

For the above discussed reasons, claims 4-7, 9, 11, 14 and 17 dependent from independent claim 1, claims 22-25, 27, 29, 31, 33, 38-41 and 43 dependent on independent claim 19, and claims 48 and 52 dependent on independent claim 35 are patentable and in condition for allowance. Applicants therefore respectfully request the withdrawal of the Examiner's rejection of claims 4-7, 9, 11, 14, 17, 22-25, 27, 29, 31, 33, 38-41, 43, 45, 48 and 52 under 35 U.S.C. §103.

B. Non-obviousness of Dependent Claims 4, 5, 9 and 11

Young in view of Weitz in further view of Lannert does not teach or suggest each and every feature of dependent claims 4, 5, 9 and 11. In the Office Action, the Examiner admits that Young and Weitz do not teach the features of claims 4, 5, 9 and 11. Furthermore, Young in view of Weitz does not teach or suggest each and every limitation in claims 4, 5, 9 and 11. The Examiner cites Lannert for the purpose of suggesting that one ordinarily skilled in the art might modify Young in view of Weitz to include the features cited in claims 4, 5, 9 and 11.

There must be suggestion or motivation in the references or in the knowledge of one ordinarily skilled in the art to modify Young in view of Weitz in further view of Lannert. There is no suggestion or motivation in the references of Young in view of Weitz and Lannert, or in the knowledge of one ordinarily skilled in the art to combine Lannert with Young in view of Weitz.

Lannert describes a goal-based learning system using an expert training engine to provide a cognitive educational experience. The purpose of Lannert is to overcome the lack of motivational aspects with traditional training programs that result in a user becoming bored or ceasing to complete a training program (Column 1, Lines 46-59). Lannert provides a creative learning environment to a user by dynamically presenting remedial educational materials based on a user's response to the training system (Column 2, Lines 1-4). In contrast, Young is directed to overcoming problems with the completeness of system documentation in a timely manner (Page 281, Paragraph 6). Young provides for automating more of the documentation production to generate reference materials about an implemented system (Page 281, Paragraph 7). In further contrast, Weitz describes using a generic markup language to more tightly integrate document and workflow modeling for business process re-engineering projects (Page 185, Column 1, Paragraphs 1-2; Page 185, Column 2, Paragraph 3, Lines 4-7).

The suggested combination of Lannert with Young in view of Weitz would change the principle operation of Young as well as require substantial reconstruction and redesign to the elements of Young. Young's principle operation is to automatically generate system documentation using components of a proprietary product. Specifically, the electronic notebooks of Young are designed and constructed to use the specific proprietary development structure of the product. An electronic notebook is generated from elements, such as notebook cells, and built-in document writing capabilities found only in the underlying proprietary structure of the



product. (Page 281, Paragraph 3, Lines 1-2; Page 282, Paragraph 3, Lines 1-3). In contrast, Lannert's principle operation is to provide a media-based interactive training system using generally available object oriented technologies. In a preferred embodiment, the system of Lannert is constructed using a spreadsheet as part of the training simulation system with Visual Basic as the development platform for the graphical user interface (Column 94, Lines 16-20). The training simulation system in Lannert is designed to interact with an end user through a graphical user interface training application. Lannert requires the end user to manually initiate and respond to inputs and outputs of the simulator to stimulate the simulation model. As such, the combination of Lannert with Young and view of Weitz would change the principle operation of Young as it would require Young to have the end user directly communicate with a simulation system rather than the components comprising the electronic notebook.

In the office action, the Examiner admits Young in view of Weitz does not teach or suggest the reporting components are defined according to an object oriented programming language. The Examiner indicates that it would be obvious to one ordinarily skilled in the art to define the reporting components in Young according to an object oriented programming language to reduce efforts in design and development. The Applicants respectfully disagree with the Examiner and contend that there is no motivation or suggestion to combine Lannert with Young in view of Weitz because, in contrast, it would significantly increase the design and development efforts. The proprietary structure of the development environment in Young significantly hinders the use of object oriented technologies. The combination of Lannert and Young in view of Weitz would create a hybrid system of proprietary structure and object orientated technologies that would increase the efforts in design and development. It would also

significantly increase the efforts of maintaining such a system leading to an undesirable and unsatisfactory combination.

Additionally, Applicants contend that Lannert lacks the reporting components and the assembling of reporting components to form a report as in the claimed invention. In the Office Action, the Examiner argues that the spreadsheet in Lannert is a reporting component. Applicants respectfully disagree. Lannert specifically describes using a spreadsheet such as Microsoft Excel to design a training simulation model (Column 93, Lines 37-42). The spreadsheet is designed and constructed to support simulation modeling (Column 94, Lines 17-18). As such, the spreadsheet of Lannert is not a reporting component assembled to form a report.

For the above discussed reasons, the apparatus of Lannert has a structure, and an operation, and a function different from Young in view of Weitz. As such, there is no suggestion or motivation in the references themselves or in the knowledge of one ordinarily skilled in the art, at the time of the claimed invention, to combine Lannert with Young in view of Weitz.

### III. Rejection of Claims under 35 U.S.C § 103(a) as Unpatentable over Young in view of Weitz in further view of Skidmore

Claims 10, 28 and 44 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Young in view of Weitz and in further view of Skidmore et al (“A Prototype Notebook Based Environment For Computational Tools”, IEEE, 1998) (“Skidmore”). Applicants respectfully traverse this rejection and submit that Young in view of Weitz in further view of Skidmore fails to detract from the patentability of claims 10, 28 and 44.

A. Non-obviousness of Claims Dependent from Independent Claims 1, 19 and 35

Independent claims 1, 19 and 35 are directed to a set of reporting components that bi-directionally communicate with a computing environment *during a simulation of a simulation model*. As discussed above, Young in view of Weitz does not teach or suggest a set of reporting components that bi-directionally communicate with a computing environment during *a simulation of a simulation model*. As such, Applicants contend that independent claims 1, 19 and 35 are patentable and in condition for allowance. Therefore, claim 10 dependent on independent claim 1, claim 28 dependent on independent claim 19 and claim 44 dependent on independent claim 35 are patentable and in condition for allowance.

B. Non-obviousness of Dependent Claims 10, 28 and 44

Young in view of Weitz in further view of Skidmore does not teach or suggest each and every feature of claims 10, 28 and 44. Claims 10, 28 and 44 recite the feature that processing the reporting components includes *issuing commands to the computing environment to simulate the model*. As the Examiner admits in the Office Action, Young in view of Weitz does not teach or suggest each and every limitation in claims 10, 28 and 44. The Examiner cites Skidmore for the purpose of suggesting that one ordinarily skilled in the art might modify Young in view of Weitz to include the features cited in claims 10, 28 and 44.

Skidmore teaches away from Young. Skidmore describes a virtual notebook environment (“ViNE”) to address integration concerns about inter-tool connectivity (Page 1, Paragraph 1). ViNE provides a framework for integrating existing tools, such as available electronic notebook generation tools, via an integration wrapper (Page 5, Paragraph 6, Line 1 to Page 6, Paragraph 1, Line 3). ViNE is focused on incorporating existing tools without requiring

the user to learn new tools (Page 10, Paragraph 4, Line 5 to Page 11, Paragraph 1, Line 1).

Young describes an electronic notebook generation tool that is the type of tool targeted to be integrated with ViNE as described in Skidmore. As such, Skidmore teaches away from modifying any existing electronic notebook tool, such as the one described in Young. Therefore, there is no suggestion or motivation in the teachings of the references or in the knowledge of one ordinarily skilled in the art, at the time of the claimed invention, to combine these references.

In light of the aforementioned arguments, Applicants contend that claims 10, 28 and 44 are patentable and in condition for allowance. Applicants therefore respectfully request the withdrawal of the Examiner's rejection of claims 10, 28 and 44 under 35 U.S.C. §103.

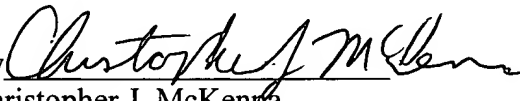
#### CONCLUSION

In view of the remarks set forth above, Applicants contend each of the presently pending claims in this application are in immediate condition for allowance. Accordingly, Applicants respectfully request the Examiner to pass the claims to allowance.

If the Examiner deems there are any remaining issues, we invite the Examiner to call the Applicants' Attorney at the telephone number identified below.

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Attachments